Science

Name of Course	AQA: GCSE Combined Science Trilogy AQA: GCSE Separate Sciences
Exam Board	AQA
Curriculum Outline	Science is a set of ideas about the material world. This includes investigating, observing, experimenting or testing out ideas and thinking about them. The way scientific ideas flow through the course, will support students build a deep understanding of Science. This involves talking about, reading and writing about science plus the actual doing, as well as representing science in its many forms both mathematically and visually through models. Students should have a basic understanding of the following threshold concepts and be able to apply them: Biology • Organisms are organised on a cellular basis and require organised systems to function efficiently. • Organisms require a supply of energy and materials for which they often depend on or compete with other organisms. • The diversity of organisms, living and extinct is a result of evolution, where genetic information is passed down from one generation of organisms to another. Chemistry • All matter in the Universe is made of very small particles and the interactions between them. • Reactions involve the rearrangement and/or re-organisation of atoms and/or the transfer of electrons. • The Earth is a complex of interacting rock, water, air and life, containing and generating resources to make materials. • Chemical matter can be quantified using calculations or measurements or using equations. Physics • Forces can be a quantitative description of an interaction that causes a change in an object's motion or shape. Forces can directly affect objects or affect them from a distance. • A system possesses energy if it can do work. Energy is a scalar quantity, abstract and cannot always be perceived and given meaning through calculation. The total amount of energy in the Universe is always the same but can be transferred from one energy store to another during an event. • All matter is composed of tiny indivisible particles too small to see. These particles do not share the properties of the material they make up. There is nothing in the space between the particles that make up matter. The particles which make up matter are in constant motion in all physical states.

Learning & Assessment Method	Science is studied in ways that help students to develop curiosity about the natural world, insight into how science works, and appreciation of its relevance to their everyday lives. The scope and nature of such study is broad, coherent, practical and satisfying, and thereby encourages students to be inspired, motivated and challenged by the subject and its achievements. GCSE study in Science provides the foundations for understanding the material world. Scientific understanding is changing our lives and is vital to the world's future prosperity, and all students are taught essential aspects of the knowledge, methods, processes and uses of science. They are helped to appreciate how the complex and diverse phenomena of the natural world can be described in terms of a small number of key ideas relating to the sciences which are both inter-linked, and are of universal application. The exams will measure how students have achieved the following assessment objectives. • AO1: Demonstrate knowledge and understanding of: scientific ideas; scientific techniques and procedures. (40%) • AO2: Apply knowledge and understanding of: scientific ideas; scientific enquiry, techniques and procedures. (40%) • AO3: Analyse information and ideas to: interpret and evaluate; make judgments and draw conclusions; develop and improve experimental procedures. (20%) Students who study Separate Science (Biology, Chemistry, Physics) gain 3 separate GCSE grades. Students complete 6 x 1hour 45min exams at the end of Year 11 Students who students Combined Science:Trilogy study all 3 science subject and are awarded 2 GCSE grades from the combined subjects. Students complete 6 x 1hr 15min exams at the end on Year 11 Students also complete required practical work that is incorporated into the exams. Proportion of the exam that contain mathematical problems and calculations: 10% Biology exam papers 20% Chemistry exam papers 30% Physics exam papers All students start the separate science course in Year 9 and over the course of Year 10, teaching staff will decide (based on student progression) which Science pathway pupils will pursue.
Curriculum Intent	• Understand the uses and implications of science, today and for the future. • Develop and embed knowledge that can be built upon through skills based opportunities. • Understanding the importance of STEM and STEM careers so students can make informed decisions and gain access to the next stage of work life after education. • Developing investigation skills so students can confidently demonstrate a sound knowledge and understanding of designing, carrying out and evaluating scientific investigations. • Understanding science in context to the wider world and provide opportunities for students to explore science outside of the day to day teaching.

Career and Learning Progression	People who work in science careers are responsible for many of the things we, as a society, benefit from every day—ways to prevent and cure diseases, new technology, and strategies to help control climate change. GCSE in either Separate Science on Combined Science (Trilogy) will allow students to carry on their education in Science to A levels and beyond. The requirements to study pure Science A-levels usually include a grade 6 or above in Maths and 2 grade 6's in Science (including the Science you wish to study at A-level). To prepare for a science career, you will have to study either life or physical science. Life sciences involve learning about living organisms and include subjects like biology, biochemistry, microbiology, zoology, and ecology. Physics, chemistry, astronomy, and geology are all physical sciences, which deal with the study of non-living matter. Reasons to choose science as a career: 1. Better understanding of the world 2. Scientific progress is crucial to our future 3. A large number of job opportunities 4. Travel the world 5. Improve your analytical skills 6. Improve your problem solving skills 7. Keep up to date with current research Scientific Careers include: Engineer, Technician, Statistician, Computational scientist, Forensic Scientist, Healthcare scientist, Research fellow, Psychologist, Biologist, Zoologist, Geologist, Astronomer, Biochemist, Economist, Sociologist, Petrochemicals.
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